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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/563,801

09/20/2006

Juha T. Rantala

LAIN-080

5338

20374 7590 03/18/2009

KUBOVCIK & KUBOVCIK

SUITE 1105

1215 SOUTH CLARK STREET

ARLINGTON, VA 22202

EXAMINER

DANG, TRUNG Q

ART UNIT

PAPER NUMBER

2892

MAIL DATE

DELIVERY MODE

03/18/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/563,801	RANTALA, JUHA T.	
	Examiner	Art Unit	
	Trung Dang	2892	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 March 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 17, 35, 51, 62 and 63 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 17, 35, 51, 62 and 63 is/are allowed.
- 6) ☒ Claim(s) 1 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 January 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>1/9/06</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Sugahara et al. (US 2002/0004298 cited by applicant).

The First Embodiment disclosed in paragraphs [0071] to [0078] of the prior art teaches the claimed invention in that it discloses a method for forming a low dielectric constant structure on a semiconductor substrate by CVD processing, comprising the steps of:

introducing a material gas into a reaction chamber for CVD processing, wherein a semiconductor substrate is placed, said material gas comprising a silicon-containing chemical compound having the formula of $R^1-Si-(X^1)_{4-n}$, wherein X^1 is an alkoxy and R^1 is a group directly linked to Si, selected from hydrocarbyl groups having from 1 to 30 carbons;

n is an integer 1-3; and

forming a silicone polymer film on the semiconductor substrate by activating a polymerization reaction in the reaction chamber where the material gas is present until the relative dielectric constant of the silicone polymer film is lower than a predetermined value.

Note that the chemical formula 1 disclosed in para. [0076] anticipates the claimed chemical formula in the case an **optional** group R^2 not present in the formula, R^1 is directly linked to Si and selected from hydrocarbyl groups having 6 carbons, and n equals to 1. Furthermore, para. [0084] discloses the dielectric constant of the deposited insulating film is about 3.0 which is lower than a predetermined value of, for example, 3.9.

Allowable Subject Matter

2. Claims 17, 35, 51, 62-63 are allowed over prior art of record.

3. The following is an examiner's statement of reasons for allowance:

Claims 17, 51, 62, and 63 are allowable over prior art of record because the prior art fail to teach or suggest the claimed poly(organo siloxane) compound which includes $-R^1-R^2$ bound to from 5% to 60% of the silicon atoms in the Si--O backbone, wherein R^2 is an aromatic group having 6 carbon atoms and R^1 is a substituent at position 4 of R^2 .

Claim 35 is allowable over prior art of record because the prior art fail to teach or suggest the claimed poly(organo siloxane) compound as noted above or a compound comprises $-R^1-R^2$ bound to from 25% to 60% of the silicon atoms in the Si--O backbone, wherein R^1 is a group directly linked to Si, and R^3 is bound to from 5% to 60% of the silicon atoms, wherein R^3 is an alkenyl group having from 2 to 5 carbon atoms, acrylic group or epoxy group.

Any comments considered necessary by applicant must be submitted no later

Art Unit: 2892

than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Trung Dang whose telephone number is 571-272-1857. The examiner can normally be reached on Mon-Friday 9:30am-6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thao Le can be reached on 571-272-1708. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Trung Dang/
Primary Examiner, Art Unit 2892

3/16/09

Application/Control Number: 10/563,801
Art Unit: 2892

Page 5